

Application No.: 10/737338
Docket No.: FA1084USNA

Page 7

REMARKS/ARGUMENTS***Status of the Application***

Claims 1 and 25 are being amended to reflect that the only antioxidant additives claimed are hydroperoxide decomposers (a secondary antioxidant), deleting phenol-based (primary) antioxidants.

Claim 17 is canceled.

Claims 1-16, and 18-26 are pending.

Allowable Subject Matter

The Examiner has stated that Claim 15 would be allowable if written in independent form including all limitations of the base claim and any intervening claims.

Applicants' Amendment Dated January 3, 2006

Applicants wish to maintain their Remarks/Arguments of record presented in their Amendment of January 3, 2006, but will not restate them in this space.

Claim Rejections – 35 U.S.C. §102

Claims 1-4, 11-12, 16-17, 19-20, and 24-25 are rejected under 35 U.S.C. §102(b) as being anticipated by Primeau, II, et al., U.S. Patent No. 6,013,755 (hereinafter Primeaux '755). Primeau '755 requires a sterically hindered phenol as an antioxidant additive. The preferred primary antioxidant is a substituted, sterically hindered phenol, more particularly, a substituted ester of hydroxyhydrocinnamic acid. Still more particularly, a 3,5-dialkyl ester of hydroxyhydrocinnamic acid, and especially octadecyl 3,5-di-tert-butyl-4-hydroxyhydrocinnamate (available commercially as Irganox® 1076 from Ciba-Geigy) is preferred. See Primeau '755 at Col. 8, lines 21-28.

Claims 1-7, 9-12, 16-17, 19-20, and 24-25 are rejected under 35 U.S.C. §102(e) as being anticipated by Primeaux, II, et al., U.S. Patent No. 6,399,736 (hereinafter Primeaux '736). As above, Primeaux '736 is directed to a polyurea elastomer including the reaction product of (a) a pre-blend of an amine-terminated polyether and an aspartic ester, and (b) an isocyanate compound. The antioxidants used in Primeaux '736 are discussed at Col. 12, lines 7-27 thereof. The antioxidant element generally includes a substituted, sterically hindered phenol, and in particular, a substituted ester of hydroxyhydrocinnamic acid. The preferred antioxidant element includes a 3,5-dialkyl ester of hydroxyhydrocinnamic acid, which is more preferably octadecyl 3,5-di-tert-butyl-4-hydroxyhydrocinnamate which is available from Ciba Specialty Chemicals under the trade name Irganox®. There are several different variants of Irganox® though the one called out as most preferred in this reference is Irganox® 1076. Primeaux '736 is a continuation-in-part of Primeaux '755; the discussion of the primary

BEST AVAILABLE COPY

Application No.: 10/737338
Docket No.: FA1084USNA

Page 8

antioxidant in the former, at Col. 12, lines 7-27, is exactly the same text as that in the latter at Col. 8, lines 21-41.

Phenolic antioxidants are known in the art as primary oxidants; hydroperoxide decomposers are known as secondary antioxidants. Phenol-based antioxidants are well known in the art, as demonstrated by the cited text from both Primeaux II references. To the extent that hydroperoxide decomposing secondary antioxidants are known in the art, their use is confined in the art to use in conjunction with primary antioxidants to achieve the desired antioxidant effect. The combination of primary and secondary antioxidants is used with the intention of achieving a synergistic antioxidant effect.

Primary antioxidants (such as sterically hindered secondary aromatic amines and sterically hindered phenols) act as H-donors. The reaction between the antioxidant and the peroxide radical forms a stable hydroperoxide in the polymer chain and (in the case of phenolic antioxidants) a phenoxy radical which is easily reconverted to phenol by disproportionation. The steric hindrance of the antioxidant confers stability on the molecule. Hydroperoxide decomposers transform hydroperoxides, ROOH, into non-radical, non-reactive, and thermally stable products such as ROH. The hydroperoxide decomposer is oxidized in a stoichiometric reaction. Some of these oxidation products can participate in further, consecutive oxidation reactions, and may therefore possess overstoichiometric reactivity. The hydroperoxide decomposers of the present application are organic compounds of phosphorous and sulfur. There is no art cited in which a secondary antioxidant is used alone and achieves the desired results.

Suitable hydroperoxide decomposers are identified in the present application on page 9, first full paragraph, lines 5-22, and include tris(2,4-di-tert-butylphenyl)phosphite, Sanko® HCA (9,10-dihydro-9-oxa-10-phosphenanthrene-10-oxide), triphenyl phosphate, Irgafos® TNPP, Irgafos® 12, Irgafos® 38, Irgafos® 168 and Irgafos® P-EPQ from Ciba Specialty Chemicals, Ultranol® 626, Ultranol® 641, and Weston 618 from GE Specialty Chemicals, Mark PEP-6 and Mark HP-10 from Asahi Denka, Ethanox 398 from Albemarle, and Doverphos® S-9228 from Dover Chemicals. Please refer to Table 1, page 15, and Graph 1, page 17 of the application. Table 15 shows that Comp 2 has a primary antioxidant (Irganox® 1135) and Comp 5 has both primary (Irganox® 1010) and secondary (Sanko® HAC) antioxidants. Comp 3 has only a secondary antioxidant (Sanko® HAC). The durability of Comp 3 is almost the same as Comp 2 (primary only) and Comp 5 (primary and secondary). Accordingly, the claimed invention establishes that a secondary antioxidant by itself can exhibit surprising and unexpected antioxidant properties.

BEST AVAILABLE COPY

Application No.: 10/737338
Docket No.: FA1084USNA

Page 9

For these reasons, claims 1-7, 9-12, 16-17, 19-20, and 24-25 are not anticipated by either Primeaux '755 or Primeaux '736. Applicants respectfully request that the Examiner withdraw these rejections based on 35 U.S.C. §102(b) in light of the claim amendments and remarks presented above.

Claim Rejections – 35 U.S.C. §103

Claims 5-7, 8, 9-10, 13, 14, 18 and 21-23 are rejected under 35 U.S.C. §103 as being unpatentable over the references cited with respect to each rejection. Claims 5-7, 8, 9-10, 13, 14 and 18 are all dependent, directly or indirectly, from claim 1. Applicants submit that claim 1 is novel in light of the claim amendments and remarks presented above in that claim 1 expressly excludes the primary hindered phenol antioxidant of the prior art and relies solely upon a secondary, hydroperoxide decomposer antioxidant for antioxidant activity. If claim 1 is accepted as novel, its dependent claims are patentable over the §103 art cited by the Examiner. Claims 21-23, while written in independent form, incorporate the novel coating of claim 1, and therefore are patentable over the prior art cited if the asserted novelty of claim 1 is recognized.

Claims 5-7 and 9-10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Primeaux '755 in view of Primeaux '736. As stated above, claims 1 and 25 have been amended to delete the primary antioxidant and rely solely on a secondary antioxidant. Neither Primeaux II reference discloses or teaches a secondary antioxidant. Accordingly, combining the two would not resolve any deficiency remaining in the two Primeaux II references.

Thus, Applicants believe that claims 5-7 and 9-10 are patentable, and respectfully request that this rejection be withdrawn.

Claim 8 is rejected under 35 U.S.C. §103(a) as being unpatentable over Primeau '736 in view of Huynh-Ba (US2002/0132934). In Huynh-Ba, the polyhydroxyl acrylate is a compound, component (A), comprising hydroxyl-containing acrylic polymer and polyhydroxyl tertiary amine (please see [0009]). The polyhydroxyl tertiary amine in (A) is present as a mixture with the acrylic polymer in solution in the liquid carrier ([0027]). There is no such mixture of a tertiary amine with an acrylic polymer in the present claims to achieve the desired level of hydroxyl functionality. Therefore, it is not seen how the Applicants' inclusion of hydroxy-functional acrylates in claim 8 is made obvious by component A in Huynh-Ba. The mixture of Huyhn-Ba is altogether different and does not teach or suggest that a hydroxy-functional acrylic polymer alone is sufficient to achieve the desired rapid-drying properties of the coating.

BEST AVAILABLE COPY

Application No.: 10/737338
Docket No.: FA1084USNA

Page 10

Claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over either one of Primeaux '755 or '736 in view of Zwiener, et al., U.S. Patent No. 5,126,170. Zwiener teaches neither primary (hindered phenols) nor a combination of primary and secondary (organophosphites, thioesters) antioxidants.

Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over either one of Primeaux '755 or '736 in view of Schmitt, et al., U.S. Patent No. 5,652,301. Schmitt is also silent on antioxidants, limiting suggested additives to (Col. 11, lines 40-43) fillers, plasticizers, pigments, carbon black, silica sols and known levelling agents, wetting agents, antifoaming agents and stabilizers.

Neither Zwiener nor Schmitt teach or suggest the use of an antioxidant or that a secondary antioxidant used alone could provide sufficient antioxidative properties to the coating composition.

Finally, claim 18 is rejected under 35 U.S.C. §103(a) as being unpatentable over either of Primeaux II '755 or '736 in view of Wolf. Claim 18 depends from claim 1. Applicants respectfully reiterate their position that neither of the Primeaux references apply, for reasons presented above. Wolf says only that secondary antioxidants include phosphites, phosphonites, thioethers, and metal salts. (Section 2.2(2)). In Section 2.3, Wolf describes the mechanism of thermooxidative degradation, which is defined as an autocatalytic, free-radical chain reaction (initiation + propagation + branching + termination stages). Peroxy radicals ROO[•] participate in intermolecular and intramolecular chain propagation reactions to form new radical sites and hydroperoxides. The extent of thermooxidative degradation in many polymers can be determined by the concentration peroxy radicals, hydroperoxide groups, and carbonyl groups. This reference does not teach or suggest that a secondary antioxidant applied alone, without a hindered-phenolic antioxidant, can confer sufficient antioxidative properties on the coating composition to achieve a useful coating for substrates such as trucks and automobiles. Accordingly, the Applicants respectfully request the Examiner to withdraw this rejection.

Conclusion

In view of the foregoing claim amendments and remarks, Applicants believe that this application stands in condition for allowance with withdrawal of all grounds of rejection. A Notice of Allowance is respectfully solicited. If the Examiner has questions regarding the application or the contents of this response, the Examiner is invited to contact the Applicants' representative at the telephone number below.

BEST AVAILABLE COPY

Application No.: 10/737338
Docket No.: FA1084USNA

Page 11

In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,


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Dated: May 31, 2006